IN THE CLAIMS:

Claim 1. (Amended) A microfluidic device comprising:

a substrate having at least one channel and at least one aperture in fluid communication with said channel;

a cover bonded to said substrate such that a reservoir is formed at said at least one aperture; and

~~and~~ a driving electrode comprised of an electrically conducting silver/silver chloride ink pattern on at least one of said substrate and cover such that when a material is present in said channel and reservoir said ink pattern makes electrical contact with said material.

Claim 2. The device of claim 1 wherein said ink pattern is on said cover.

Claim 3. The device of claim 1 wherein said electrical contact is made in said reservoir.

Claim 4. (Amended) The device of claim 1 comprising a first channel, a second channel, and a third channel, ~~said~~ the first and second channel being fluidly connected to ~~said~~ the third channel at separate points along the third channel and wherein said electrical contact is made in one of ~~said~~ the first channel, second channel, and third channel.

Claim 5. (Amended) The device of claim 1 wherein ~~the~~ said cover is bonded to ~~the~~ said substrate by one method selected from the group of thermal bonding, using an adhesive and using a double-sided adhesive layer.

Claims 6-7. (Canceled)

Claim 8. (Amended) The device of claim 1 wherein ~~the~~ said material is a substance useful in electrophoretic applications.

Claim 9. (Amended) The device of claim 1 wherein ~~the~~ said ink pattern is on said substrate.

Claim 10. The device of claim 1 wherein said ink is patterned on said cover using one method selected from the group of ink jet printing, screen printing and lithography.

Claims 11-13. (Canceled)

Claim 15. (Canceled)

Claim 16. (Amended) The device of claim 1 wherein said ink is ~~one ink selected from the group consisting of polyester or~~ an acrylic-based ~~carbon/graphite ink, platinum ink, silver ink,~~ silver/silver chloride ink~~, and metal powder doped carbon ink~~.

Claim 17. The device of claim 1 wherein said ink is a polyester based silver/silver chloride ink.

Claim 18. (Amended) The device of claim 1 wherein said ink pattern has width of 10 to 400 μm.

Claim 19. (Amended) The device of claim 1 wherein said ink pattern includes a contact~~,~~ and a lead~~, and a heating element~~.

Claims 20-21. (Canceled)

Claim 22. (Amended) The device of claim 1 wherein said substrate is made from a plastic selected from the group ~~comprising~~ consisting of norbornene, polystyrene, acrylic, polycarbonate-polyester, and polyolefin.

Claim 23. The device of claim 1 wherein said substrate is a norbornene based substrate.

Claims 24-25. (Canceled)

Claim 26. (Amended) A method for reducing bubble formation during electrokinetic applications in a microfluidic device having interconnected channels and reservoirs, said method comprising the steps of:

providing at least two driving electrodes for contacting a medium in said channels and reservoirs when the medium is present, wherein at least one driving electrode has a surface comprising silver and silver chloride; and

applying a voltage across the at least one driving electrode having a surface comprising silver and silver chloride and another driving electrode such that fewer bubbles form in said channels and reservoir as are formed when applying said voltage across driving electrodes of bare platinum.

~~applying voltage to a medium contained in said channels and reservoirs, said voltage being applied to said medium through an electrically conducting ink in electrical contact with said medium wherein said electrically conducting ink reduces bubble formation during application of said voltage to said medium.~~

Claim 27. (Amended) The method of claim 26 wherein said microfluidic device comprises a substrate and a cover bonded to said substrate and wherein said ~~electrically conducting~~ electrodes are integrated electrodes formed using an ink ~~is~~ patterned on said cover such that when said cover is bonded to said substrate to form said device said ink is positioned in said reservoir and makes electrical contact with said medium therein.

Claim 28. (Amended) The method of claim 26 wherein an electrode is positioned in one of said reservoirs to make electrical contact with said medium in said reservoirs and wherein said electrode comprises a silver/silver chloride ~~coating~~ coated electrode ~~of said electrically conducting ink~~.

Claim 29. (Amended) The method of claim ~~26~~ 27 wherein the ink is ~~selected from the group consisting of polyester or~~ an acrylic-based ~~carbon/graphite ink, platinum ink, silver ink,~~ silver/silver chloride ink~~, and metal powder doped carbon ink~~.

Claim 30. (Amended) The method of claim ~~26~~ 27 wherein the ink comprises a polyester-based silver/silver chloride ink.

Claims 31-45. (Canceled)

Claim 46. (New) A device for performing electrokinetic transport comprising:

a substrate having a channel and at least two apertures formed therein in communication with the channel at different points along the length of the channel;

a cover bonded to the substrate enclosing the microchannel and forming reservoirs at the at least two apertures;

a driving electrode associated with a plurality of the at least two reservoirs, wherein the surface of at least one driving electrode comprises silver and silver chloride.

Claim 47. (New) The device of Claim 46, wherein said device is used for electrophoretic separations, and further comprises an electrophoretic separation medium within said channel.

Claim 48. (New) The device of Claim 46, comprising two driving electrodes having surfaces comprising silver and silver chloride.

Claim 49. (New) The device of Claim 46, wherein said electrodes are integrated electrodes adhered to the surface of said substrate or said cover.

Claim 50. (New) The device of Claim 46, wherein said electrodes are silver/silver chloride ink-coated wire electrodes positioned in said reservoirs.

Claim 51. (New) The device of Claim 46, wherein said device is used at least two times.

Claim 52. (New) The method of of Claim 26, wherein two electrodes have surfaces comprising silver and silver chloride.

Claim 53. (New) A method for performing electrophoretic separations using high field strengths, the method comprising:

providing a microfluidic device comprising a substrate and a cover bonded to the substrate which has formed therein at least one channel interconnected with at least two reservoirs, the channels and reservoirs containing a separation medium, and having at least two electrodes with a surface comprised of silver and silver chloride associated with two reservoirs;

introducing a sample of electrophoretically separable analytes into the device; and

applying a voltage across the electrodes to yield a field in the medium of at least 400 V/cm; thereby performing the separation of the analytes at a high field strength.

Claim 54. (New) The method according to Claim 53, wherein in said applying step, the voltage applied yields a field in said medium of at least 600 V/cm.

Claim 55. (New) The method of Claim 53, wherein said analytes are eTags.

Claim 56. (New) The method of Claim 53, wherein said analytes are DNA fragments.

Claim 57. (New) The method of Claim 53, wherein said sample is the product of an enzyme assay.